

**REMARKS**

**Summary of the Final Office Action**

The drawings stand objected to under 37 C.F.R. § 1.83(a).

Claim 4 stands rejected under 35 U.S.C. § 112, first paragraph.

Claims 1, 2, 5 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagai et al. (U.S. Patent No. 5,434,901) in view of Thieme et al. (U.S. Patent No. 5,222,113) (hereinafter "Thieme").

Claim 3, while objected to as being dependent upon a rejected base claim, would be allowable if rewritten in independent form.

**Summary of the Response to the Office Action**

Applicants have amended independent claim 1 to differently describe embodiments of the disclosure of the instant application and canceled claim 4 without prejudice or disclaimer.

Accordingly, claims 1-3 and 5-6 remain currently pending for consideration.

**Objection to the Drawings and Rejection under 35 U.S.C. § 112, First Paragraph**

The drawings stand objected to under 37 C.F.R. § 1.83(a). Claim 4 stands rejected under 35 U.S.C. § 112, first paragraph. Applicants have canceled claim 4 without prejudice or disclaimer, rendering the objection and rejection moot. Accordingly, Applicants respectfully request that the drawing objection and the rejection under 35 U.S.C. § 112, first paragraph be withdrawn.

**Rejection under 35 U.S.C. § 103(a) and Statement of Substance of Examiner Interview**

Claims 1, 2, 5 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagai in view of Thieme. Applicants have amended independent claim 1 to differently describe embodiments of the disclosure of the instant application. To the extent that these rejections might be deemed to still apply to the claims as newly-amended, they are respectfully traversed for at least the following reasons.

As described in the previously-filed responses in this application, Applicants respectfully submit that embodiments of the disclosure of the instant application, as described in the claims, utilize a Wolter optical system in a novel way that enables an adjustable magnification. In a Wolter optical system, the distances "a" and "b," as illustrated in Fig. 1 of the instant application, have conventionally been understood being required to remain fixed because of the performance of a grazing incidence mirror, thereby requiring the magnification to remain fixed as well. However, Applicants respectfully submit that the inventor of the instant application's disclosure discovered by ray tracing simulation that the image can still be formed even if these distances "a" and "b" are adjusted at the sacrifice of the associated resolution within an allowable degree as illustrated in Fig. 2 of the instant application.

Applicants respectfully submitted in the previously-filed responses that although the applied Nagai reference discloses the use of a Wolter optical system, it does not disclose, or even suggest, magnification adjustment of such a system, to any extent. In addition, the applied Thieme reference concerns a zone plane optical system and it does not suggest the idea of magnification adjustment while employing a Wolter optical system. In fact, Applicants respectfully submit that Thieme instead discourages such an idea of adjusting magnification

while employing a Wolter optical system by explicitly teaching that a Wolter optical system is intolerant in imaging error. See col. 1, lines 12-24 of Thieme. Therefore, Applicants respectfully submitted in the previously-filed response that a skilled person would not be motivated to combine Nagai and Thieme in the manner asserted by the Office Action, at least because Thieme teaches away from such a combination.

**Final Office Action dated January 19, 2007**

The Examiner responded to such arguments in the Final Office Action dated January 19, 2007 by alleging that the imaging error mentioned by Thieme is “directed to the imperfection in a Wolter optic, which is due to the so-called angle-tangent error.” As a result, the Examiner asserted that this teaching “in no way discourages the use of a focusing magnification adjusting means.” Accordingly, the Examiner maintained his previous rejection, asserting that “it would be obvious to provide a focusing magnification adjusting means to adjust a distance between the Wolter optical system and x-ray image detector to bring an image into focus.”

**Amendment and Remarks filed on May 21, 2007**

Applicants respectfully traversed such an assertion in the remarks filed on May 21, 2007 in this application for at least the following reasons. Applicants respectfully submit that it would not be obvious to introduce a focusing magnification adjusting means into Nagai’s disclosed Wolter mirror system in view of the disclosure of Thieme for at least the following additional reasons.

Applicants respectfully submitted that those having ordinary skill in the art understand that moving the positions of the sample and X-ray image detecting means in a Wolter mirror system such as that disclosed in Nagai in order to allow for magnification adjustment, as

proposed by the Office Action's asserted combination, would change the angle of incidence and reflection from the ideal angle. As a result, the reflected light could not converge completely at the focus point. This would result in a blurred image being obtained. More particularly, Applicants respectfully submitted that a deteriorated resolution would be obtained by the Office Action's asserted combination. On the other hand, Applicants respectfully submitted that when such a change is implemented in a zone plate arrangement, as discussed in Thieme, a change in the position of the sample and X-ray image detecting means does not lead to the deterioration of the resolution.

Therefore, Applicants respectfully submitted in the remarks previously filed on May 21, 2007 that a person having ordinary skill in the subject art would be taught away from the idea of moving the sample and X-ray image detecting means in a Wolter mirror system such as that disclosed in Nagai by the disclosure of Thieme. Moreover, Applicants respectfully submitted that the disclosure of Thieme discourages a skilled person from adopting a Wolter mirror system for a magnification adjustable system because of the angle tangent error in addition to the above mentioned disadvantage of a Wolter mirror system for magnification adjustment. Applicants respectfully submitted, in conclusion, that even if Nagai and Thieme were combined, a person skilled in the associated art would still not be motivated to adopt a Wolter mirror system into a magnification adjustable system for at least the foregoing reasons.

Applicants then noted that, as directed by MPEP § 2143.01 V., it is well understood that if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed

modification. *In re Gordon*, 733 F. 2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Accordingly, Applicants respectfully assert that the rejections under 35 U.S.C. § 103(a) should be withdrawn.

**Advisory Action dated June 6, 2007 and Examiner Interview Summary**

In response to the Amendment and remarks filed on May 21, 2007, the Examiner issued an Advisory Action dated June 6, 2007 including substantive remarks on an attached continuation sheet (PTO-303) responding to the remarks filed on May 21, 2007. After Applicants had studied the Examiner's comments in the Advisory Action dated June 6, 2007, Applicants' undersigned representative attempted to contact USPTO Examiner Allen C. Ho to discuss particular aspects of this application in an effort to advance the prosecution of this application.

Applicants' undersigned representative learned that Examiner Ho, who is currently handling this application, was out of the office at the time and would not return to the office until near the end of July (after the final due date for responding to the Final Office Action). Accordingly, Applicants' undersigned representative left a telephone message with Examiner Ho's supervisor Examiner Edward Glick to request how to proceed in light of this situation. Examiner Edward Glick returned Applicants' undersigned representative's call on July 3, 2007 and agreed to discuss the application with Applicants' undersigned representative in light of Examiner's Ho's absence from the office at the time.

Accordingly, Applicants' undersigned representative explained to Examiner Glick that, on the continuation sheet to the Advisory Action dated June 6, 2007, Examiner Ho indicated his agreement that "changing the magnification using only the focusing magnification adjustment means (8)" of Theime et al. "would result in a blurred image." However, Examiner Ho went on

to note on the continuation sheet to the Advisory Action that he "never suggested using the focusing magnification adjusting means (8)" of Theime et al. "to change the magnification." The Examiner went on to point out "[i]n other words, the focusing magnification adjustment means (8) is used as a focusing adjustment means, not a magnification adjustment means."

As a result of these statements by Examiner Ho on the continuation sheet to the Advisory Action, Applicants' undersigned representative explained to Examiner Glick that the "focusing magnification adjusting means" described in the last two lines of claim 1 of the instant application adjusts the magnification, but does not adjust the focusing. For example, the specification of the instant application describes that vacuum pipes 10 adjust the magnification. See page 17, lines 4-5 and page 18, lines 7-11 of the specification of the instant application, for example.

Accordingly, Applicants' undersigned representative suggested to Examiner Glick that claim 1 could be amended to delete all instances of "focusing" in the last two lines of claim 1 to be more consistent with the disclosure in the specification in this regard. Applicants' undersigned representative noted to Examiner Glick that this amendment to claim 1 would likely resolve Examiner Ho's issues stated in the Advisory Action because Examiner Ho specifically noted that he is applying the focusing magnification adjustment means (8) of Thieme et al. "as a focusing adjustment means, not a magnification adjustment means."

Examiner Glick appeared to understand Applicants' position in this regard, but he noted that an official Amendment would need to be filed before the USPTO would reach any official determinations of patentability.

Accordingly, Applicants have opted to proceed in the instant Preliminary Amendment in RCE with amending claim 1 as discussed with Examiner Glick during the interview. In addition, Applicants have opted to further add an additional feature to independent claim 1 to describe that the advantageous combination of features of independent claim 1 also includes “a moving stage for moving the sample along the optical axis direction to adjust a distance between the sample and the objective lens.” This additional feature is discussed in the specification of the instant application, for example, at pages 12-13 and 16 discussing a moving stage (8 for example).

Accordingly, Applicants respectfully submit that newly-amended claim 1 of the instant application clearly describes a combination of features that differ from the applied art of record for at least the foregoing reasons. Furthermore, Applicants respectfully assert that dependent claims 2 and 5-6 are allowable at least because of their dependence from claim 1 and the reasons set forth above.

The Examiner is thanked for the indication that claim 3, while objected to as being dependent on a rejected base claim, would be allowable if rewritten in independent form. Applicants respectfully submit that claim 3 is also allowable at least because of its dependence from independent claim 1. Accordingly, withdrawal of the objection to independent claim 3 is respectfully requested.

### **CONCLUSION**

In view of the foregoing amendments and remarks, withdrawal of the rejections and allowance of all pending claims are earnestly solicited. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution. A favorable action is awaited.

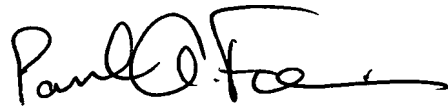
**EXCEPT** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

**DRINKER BIDDLE & REATH LLP**

Dated: July 18, 2007

By:



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Paul A. Fournier  
Reg. No. 41,023

**Customer No. 055694**  
**DRINKER BIDDLE & REATH LLP**  
1500 K Street, N.W., Suite 1100  
Washington, DC 20005-1209  
Tel.: (202) 842-8800  
Fax: (202) 842-8465